

## ABSTRACT

A method and apparatus for supporting a movable member (10) with respect to a fixed member (40) is provided. The movable member (10) includes a magnetically permeable portion (81) contained therein and magnetic element (50) fixedly attached thereto and movable therewith. The movable member (10) is supported for rotation with respect to the fixed member (40) by an outer bearing surface (11) of the movable member and an inner bearing surface (20) of the fixed member (40). The fixed member (40) provides access to the movable member (10) from two sides thereof. A magnetically permeable stator element (70) is fixedly attached to the fixed member (40) and positioned within a magnetic flux field of the magnetic element (50) such that an air gap (73) is formed between the magnetic element (50) and the stator element (70). Accordingly a magnetic traction force acts across the air gap (73) for urging the moveable member (10) toward the fixed member (40) thereby clamping the movable element in a fixed orientation with respect to the movable element. The stator element (70) includes stator current coils (60) wound onto portions of the stator element for inducing electromagnetic forces within the stator element in response to a current passing through the coils. The electromagnetic force acts on the magnetic element (50) to move the movable member (10) in a controllable manner.